

New York State

Arthritis Burden Report



August 2005

The Mission for the Arthritis Program in the State of New York is to maximize the quality of life for New Yorkers who suffer from arthritis and its related diseases.

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Introduction

Arthritis is one of the oldest diseases known to humankind, having been found in the mummies of Egypt and in the excavated remains of other ancient civilizations. Currently, it is a serious public health problem in New York as well as the rest of the nation, affecting nearly one of every four adults. Arthritis disproportionately affects women and the elderly. Of persons age 65 and older, about half are diagnosed with the disease.¹ Persons with arthritis are known to have a degraded quality of life, which impacts them, their families, employers, and the healthcare system. Currently, the total annual cost of treating arthritis, including prescription drug costs, its complications, and the disability that results from uncontrolled disease is \$5.8 billion in New York State and \$86 billion nationwide.²

The New York State Arthritis Program and its collaborative partners throughout the state recognize the importance of reducing the burden of arthritis and related diseases. The Arthritis Action Plan identifies long-term strategic directions and goals that promote the overall focus of the National Arthritis Action Plan.³



What is Arthritis?

Arthritis encompasses over 120 diseases and conditions that affect joints, the surrounding tissues, and other connective tissues. The most common types of arthritis are osteoarthritis, rheumatoid arthritis and fibromyalgia. Other types include lupus, juvenile

rheumatoid arthritis, gout, bursitis, rheumatic fever and Lyme disease to mention a few. While anyone can be at risk for developing arthritis, prevalence of this disease is higher among women than among men.



Rheumatoid arthritis is an autoimmune disease involving chronic inflammation. In rheumatoid arthritis the synovial membrane lining of the joint becomes inflamed and can result in severe deformities and bone destruction. Symptoms include swelling, pain, fatigue, and stiffness.

Osteoarthritis causes degeneration of joint cartilage and changes in underlying bone and supporting tissue, which leads to joint pain and stiffness, movement problems and activity limitation. Symptoms include localized pain, stiffness, and swelling.

Fibromyalgia is a pain syndrome involving muscle and muscle attachment areas. Common symptoms include widespread pain throughout the muscles of the body, fatigue, sleep disorders, headaches, and irritable bowel syndrome.

Lupus is a disorder of the immune system. In autoimmune diseases, the body harms its own healthy cells and tissues. This leads to inflammation and damage to various body tissues and organs. Lupus can affect many parts of the body, including the joints, skin, kidneys, heart, lungs, blood vessels, and brain. It is characterized by periods of illness, called flares, and periods of wellness, or remission.

Juvenile Rheumatoid Arthritis (JRA) is the most common form of arthritis in children. It may be a mild condition that causes few problems over time, but it can be much more persistent and cause joint and tissue damage in other children. The most common features of JRA are joint inflammation, joint contracture (stiff, bent joint), joint damage and/or alteration or change in growth.

Risk Factors for Arthritis

Non-Modifiable Risk Factors

Certain risk factors for arthritis are considered to be non-modifiable. They include gender, age and genetic predisposition as detailed below.

1. Gender

Nationally, women aged 15 years and older, account for 60% of arthritis cases.⁴ Among people with osteoarthritis, patterns of joint involvement also demonstrate differences between the sexes, with females on average having more joints involved and more frequent complaints of morning stiffness and joint swelling.⁵ Prevalence rates of rheumatoid arthritis are two to three times greater among females than males.⁶ Osteoarthritis is more common among males than females under age 45 years and more common among females than among males after the age of 54 years.⁷



2. Age

Half of the elderly population of the United States is affected by arthritis and the risk of developing arthritis increases with age. Self-reported arthritis increases directly with age for women, with 8.6 % of women ages 15-44 years, 33.5 % of women aged 45-64 years, and 55.8 % of women aged 65 years or older reporting symptoms.⁸

3. Genetic predisposition

Research indicates that certain genes may be associated with the development of some forms of arthritis and related diseases, such as rheumatoid arthritis and lupus.⁹

Groups at high-risk of osteoarthritis include:

- females with the syndrome of bony nodes usually in the joints of the fingers;
- people with congenital or developmental diseases of bones and joints (congenital hip subluxation and ipsilateral hip osteoarthritis);
- people with prior inflammatory joint disease (gout or rheumatoid arthritis); and
- people with metabolic diseases (hyperparathyroidism, hypothyroidism and chondrocalcinosis).¹⁰

The exact role of genetics and its interaction with other factors has not been determined.

Modifiable Risk Factors

Certain other conditions may predispose an individual to developing arthritis but offer the greatest opportunity for prevention if avoided or overcome through simple and sustained interventions:

1. Overweight/obesity

Maintaining an appropriate weight or reducing weight to a recommended level lowers a person's risk for some forms of arthritis. Obesity is a major risk factor for the development and progression of osteoarthritis of the knee and is associated with an increased prevalence of hip osteoarthritis.¹¹ Obesity is a strong risk factor for both sexes with respect to unilateral and bilateral knee osteoarthritis.¹² It is estimated that obesity accounts for 19% of osteoarthritis of the knees.¹³

In longitudinal studies, obesity predicts the development of knee osteoarthritis in both sexes.¹⁴ An increase in weight is significantly associated with increased pain in weight-bearing joints while weight loss has been proven to decrease the risk of developing symptomatic knee osteoarthritis in women.¹⁵ In one study, women who lost as little as 11 pounds reduced their risk of developing osteoarthritis of the knee by half.¹⁶ Obesity is also a risk factor for gout in men.¹⁷



2. Inactivity

Although regular physical activity is associated with physical and mental health benefits,¹⁸ an estimated 30% of New York adults are inactive during their leisure time.¹⁹ Evidence indicates that people with arthritis are less physically active and less physically fit than their peer group.²⁰ Furthermore, being inactive may increase arthritis problems. An appropriate exercise program is very important for people with arthritis. Physical symptoms of arthritis include pain, loss of joint motion, and fatigue. Because of these symptoms, people with arthritis are significantly less physically active than the rest of the adult population, even after taking their disability into consideration. This level of inactivity also puts them at risk for a variety of other diseases, including premature death, heart disease, diabetes, high blood pressure, colon cancer, overweight, depression, and anxiety.²¹

3. Low level of education and lower income

Some demographic factors, such as lower levels of education and lower income, are associated with arthritis. The mechanism by which these factors increase the risk of arthritis is not clear.

4. Joint injury and trauma

Evidence exists for the association of joint injury with knee and hip osteoarthritis in the general population. Several studies have suggested that hip and knee injury are an important risk factor for hip and knee osteoarthritis, respectively, especially unilateral hip and knee osteoarthritis.²²

Arthritis on the BRFSS

Surveillance and trend analysis of arthritis prevalence currently relies primarily on self-reported data from ongoing surveys such as the Behavioral Risk Factor Surveillance System (BRFSS), which samples the noninstitutionalized, civilian adult (aged 18 years and older) population. The New York State (NYS) BRFSS is a continuous telephone-based surveillance system supported in part by the Centers for Disease Control and Prevention and administered by the New York State Department of Health. The NYS BRFSS first asked arthritis questions in 2000. The data in this report are based on the 2000 and 2001 administrations of the NYS BRFSS. [Refer to Appendix A “Technical Notes” for full description.]

The definition of *doctor-diagnosed arthritis* was based on a response of “yes” to the following question:

- “Have you ever been told by a doctor that you have arthritis?”

The definition of *chronic joint symptoms (CJS)* only was based on a “no” response to the above question and “yes” responses to both of the following two questions:

- “During the past 12 months, have you had pain, aching, stiffness or swelling in or around a joint?”
- [If “yes”] “Were these symptoms present on most days for at least one month?”

For the purposes of this report, “arthritis” is considered to be synonymous with “doctor-diagnosed arthritis.” The two terms are used interchangeably.



Prevalence of Arthritis

Age Adjustment

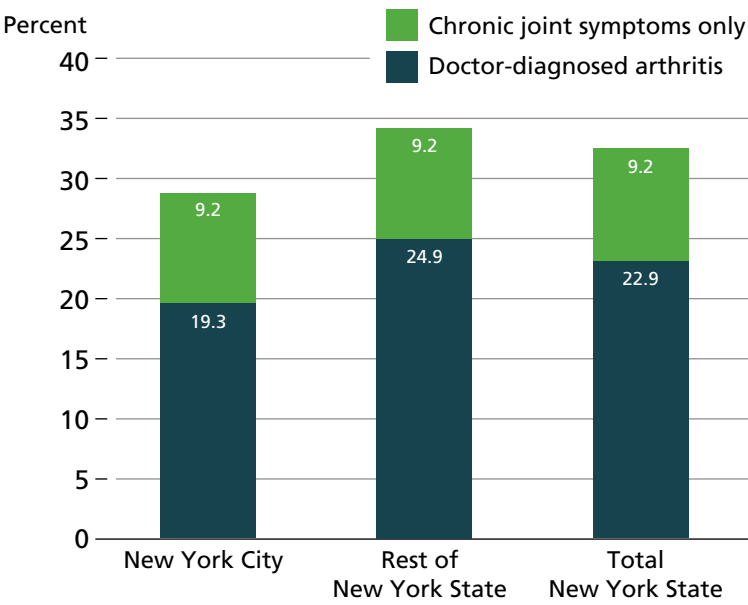
Epidemiologic studies have shown a persistent and strong association of arthritis with age. When comparing subgroups with differing age distributions, it may therefore be beneficial to age-adjust the crude prevalence rates to account for the influence of age. Accordingly, the rates within demographic and body mass index subgroups reported here were age-adjusted to the 2000 US Census population, using the direct method [see Appendix B, Tables B-1 and B-2]. The adjusted results, however, are commented on only where they help explain apparent disparities in rates among subgroups that may have different age distributions.

New York State Region

According to the combined data from the 2000 and 2001 BRFSS, an estimated 3.2 million New York adults (22.9% of the noninstitutionalized population) reported doctor-diagnosed arthritis. An additional 9.2% of the sample (representing nearly 1.3 million adult New Yorkers) reported chronic joint symptoms (CJS) only. The prevalence of arthritis was found to differ significantly by region, as the rate among adults in New York City (19.3%) was lower than that reported by adults in the rest of the state (24.9%). There were, however, no reported differences by region in the prevalence of CJS [Figure 1].

Figure 1

New York Adults Reporting
Doctor-Diagnosed Arthritis
or Chronic Joint
Symptoms Only,
by New York State Region:
2000-2001 NYS BRFSS



Sociodemographic Characteristics

The overall prevalence of arthritis varied by gender [Figure 2], as the prevalence among women (27.8%) was significantly greater than that among men (17.6%). However, there were no differences between women and men in the prevalence of chronic joint symptoms only (9.4% versus 8.9%, respectively).

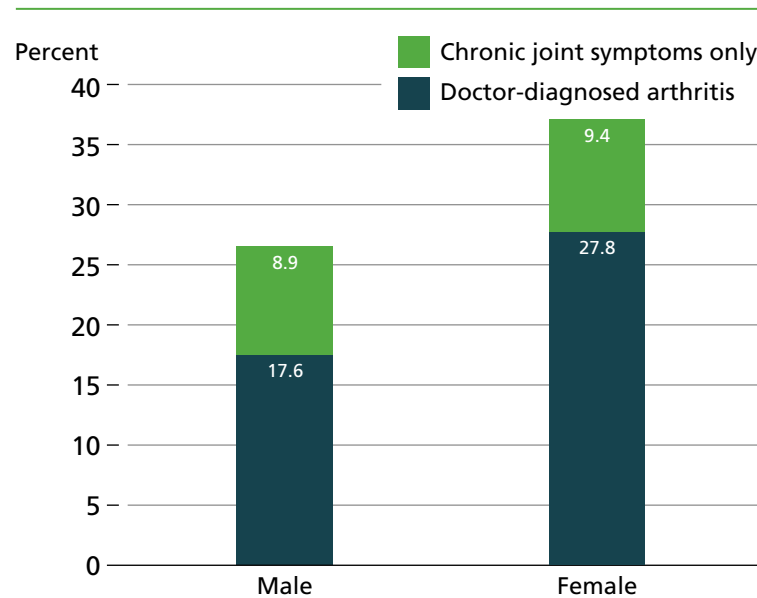


Figure 2
New York Adults Reporting Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only, by Gender:
2000-2001 NYS BRFSS

Arthritis prevalence was found to vary directly by age [Figure 3]. The prevalence increased steadily from 2.9% among those aged 18-24 years to 52.2% among those aged 65 years and older. The prevalence by age of CJS only, however, showed an inverted U-shaped relationship, starting from 7.4% among those aged 18-24 years, increasing to a high of 12.4% among the 45-54 year-olds, then declining to a low of 6.4% among those aged 65 years and older. Additional analysis (not shown) suggests that when people of middle age or older visit a doctor for their joint pain, they may be finally told that their joint symptoms are actually arthritis.

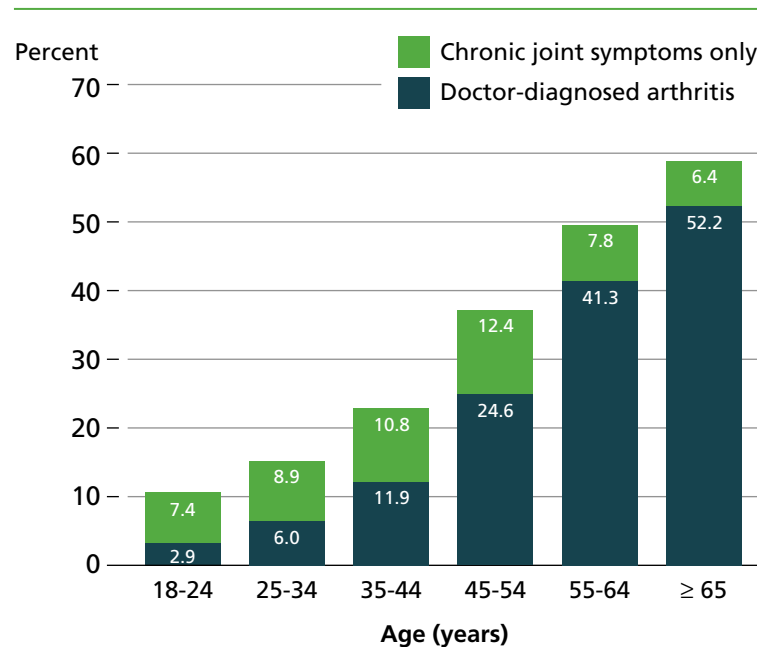
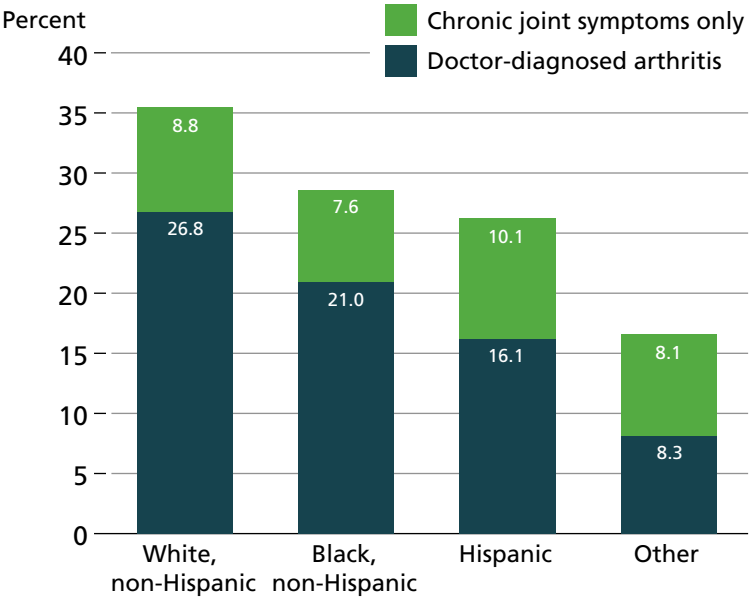


Figure 3
New York Adults Reporting Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only, by Age Group:
2000-2001 NYS BRFSS

Non-Hispanic whites reported the highest rates of doctor-diagnosed arthritis (26.8%), while non-Hispanic blacks and Hispanics reported 21.0% and 16.1%, respectively [Figure 4]. After adjusting for age, however, racial/ethnic disparities in prevalence were not evident: the adjusted rates for non-Hispanic whites, non-Hispanic blacks, and Hispanics were 23.8%, 21.3%, and 21.0%, respectively. The lowest reported prevalence (8.3%) was by respondents in the “other” category (12.2% after age-adjustment). The subgroups did not differ substantially in the reported prevalence of CJS only, neither before nor after age adjustment.

Figure 4

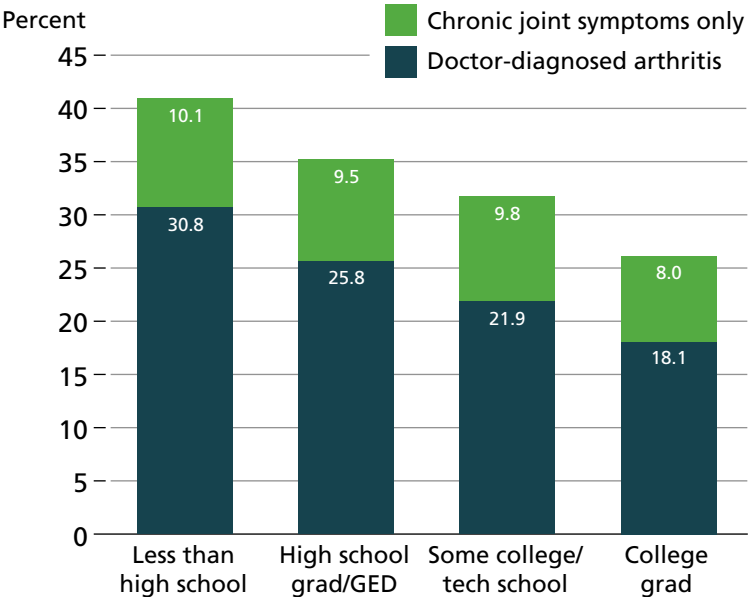
New York Adults Reporting
Doctor-Diagnosed Arthritis
or Chronic Joint
Symptoms Only,
by Race/Ethnicity:
2000-2001 NYS BRFSS



Arthritis prevalence estimates showed an inverse relationship with level of educational attainment [Figure 5], ranging from a high of 30.8% among those with less than a high school education to 18.1% among college graduates

Figure 5

New York Adults Reporting
Doctor-Diagnosed Arthritis
or Chronic Joint
Symptoms Only,
by Educational Attainment:
2000-2001 NYS BRFSS



Arthritis prevalence also varied inversely with reported annual household income [Figure 6], ranging from a high of 32.9% among those earning less than \$15,000 to a low of 15.5% among those earning \$75,000 or more. The lone significant difference found in the CJS only prevalence was between those earning less than \$15,000 (12.7%) and those earning \$75,000 or more (7.6%).

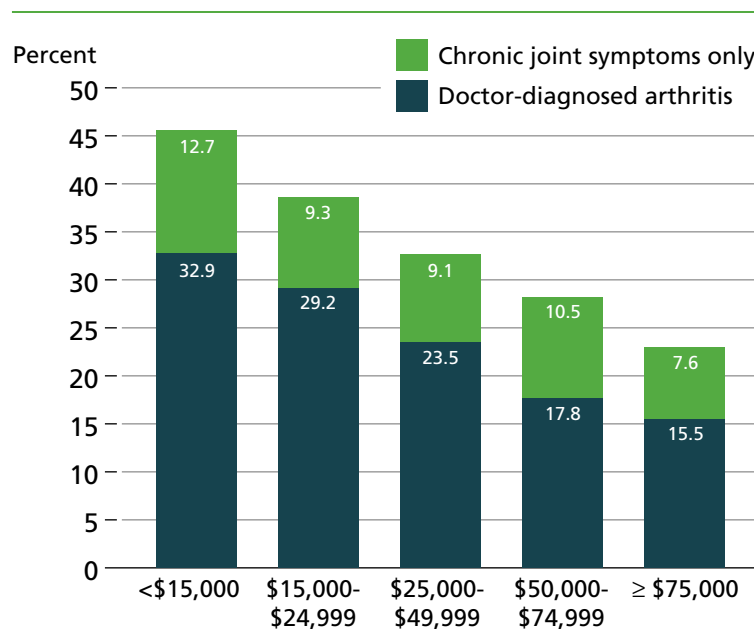


Figure 6

New York Adults Reporting Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only, by Annual Household Income:

2000-2001 NYS BRFSS

Among working-age adults (aged 18-64 years), the prevalence of arthritis among those reporting being unable to work was by far the highest of the rates by employment status [Figure 7]. A total of 48.5% of those unable to work reported having doctor-diagnosed arthritis. This is in contrast to a prevalence of 13.6% among those who were currently employed and 17.3% among those who were currently not working, although able to. The prevalence of CJS only was also significantly greater among those unable to work (16.9%), compared to those who were employed (9.7%), compared to those who were employed (9.7%).

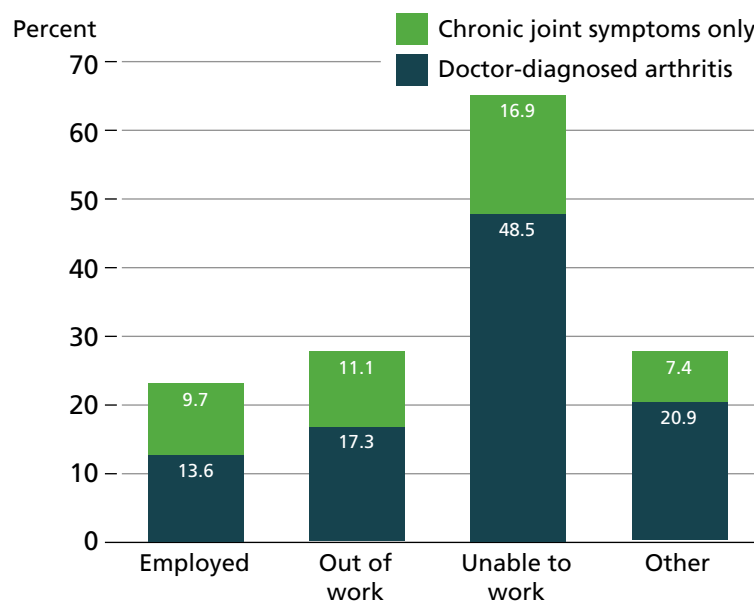


Figure 7

New York Adults Aged 18-64 Years Reporting Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only, by Employment Status:

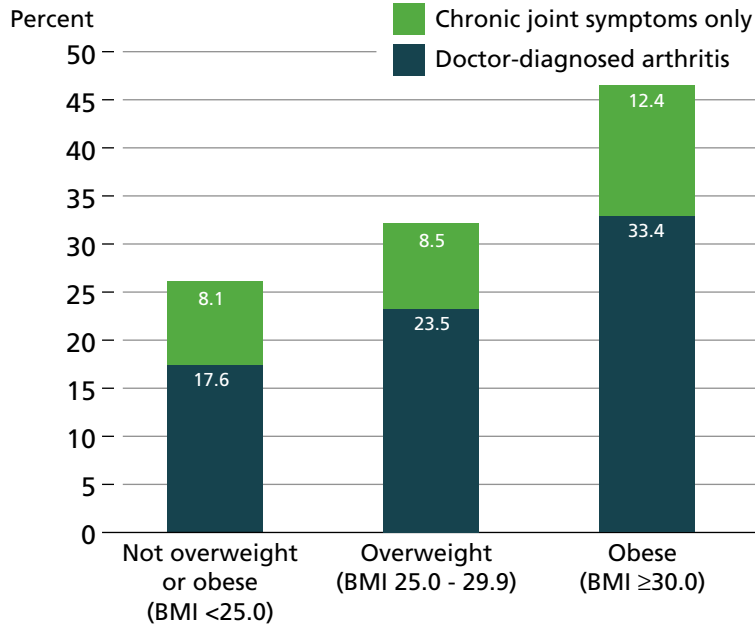
2000-2001 NYS BRFSS

Health Risk Factors

Arthritis prevalence varied directly with body mass index (BMI, kg/m²) [Figure 8], as 33.4% of those who were obese (BMI of 30.0 or higher) reported doctor-diagnosed arthritis, compared to 23.5% of those overweight (BMI of 25.0-29.9) and 17.6% of those of normal weight or less (BMI under 25.0). The disparity between the latter

Figure 8

New York Adults Reporting
Doctor-Diagnosed Arthritis
or Chronic Joint
Symptoms Only,
by Body Mass Index
(BMI) Status:
2000-2001 NYS BRFSS

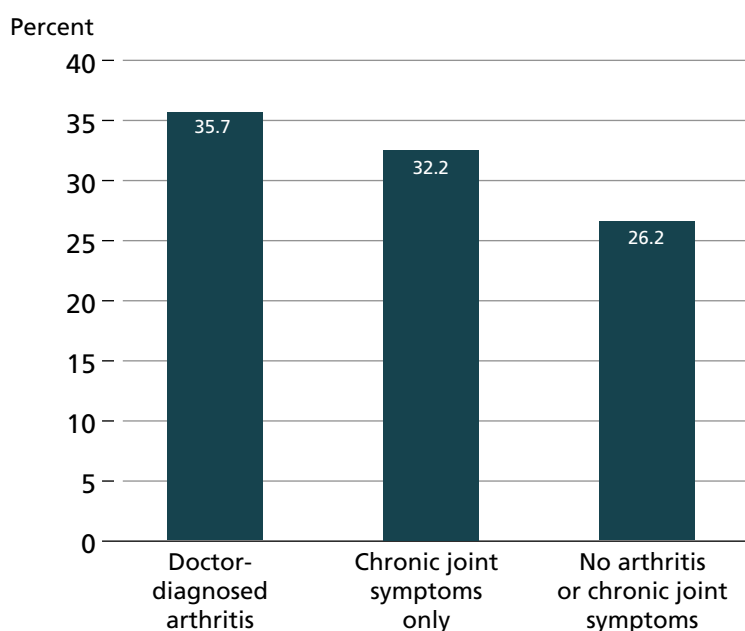


two subgroups, however, was reduced substantially by age adjustment (adjusted rates of 20.9% versus 19.4%, respectively). Those classified as obese also reported the highest prevalence of CJS only (12.4%).

Persons with arthritis or with CJS only were more likely than those with no arthritis to report being inactive [Figure 9]. A total of 35.7% of those with doctor-diagnosed arthritis and 32.2% of those with CJS only reported no leisure-time physical activity or exercise

Figure 9

New York Adults
Reporting No Leisure-Time
Physical Activity
During Past Month,
by Doctor-Diagnosed
Arthritis or Chronic Joint
Symptoms Only Status:
2000-2001 NYS BRFSS



during the prior month, compared to 26.2% of those with no arthritis or CJS.

Arthritis and Disability

Persons with arthritis or CJS only were far more likely to report having a disability (activity limitation or use of special equipment to get around) than were those without arthritis or CJS [Figure 10]. The greatest differences in disability prevalence between the subgroups were found among those less than 65 years of age.

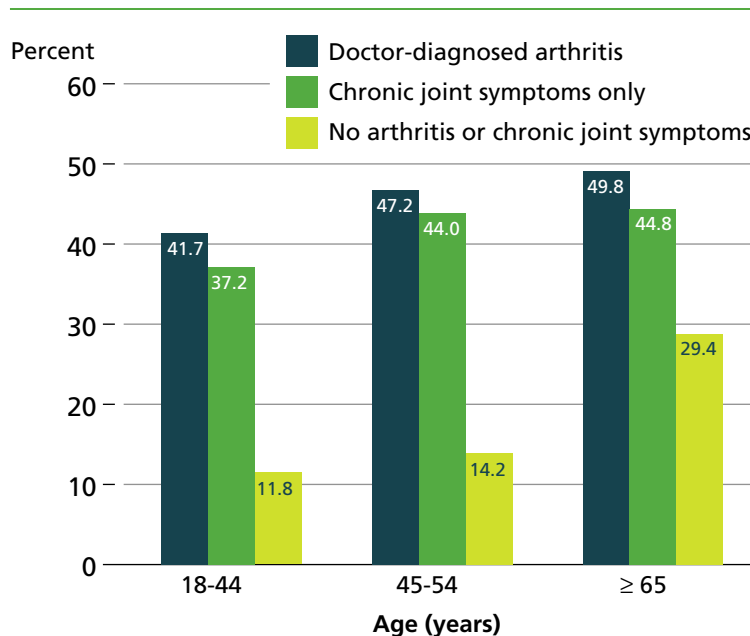


Figure 10

New York Adults Reporting Disability, by Age Group and Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only Status: 2000-2001 NYS BRFSS

Persons with arthritis were seven times more likely than those with no arthritis/CJS to report a greater degree of disability, i.e., a need for assistance in performing personal care or routine activities of daily living [Figure 11]. A total of 16.0% of those with arthritis reported needing such assistance, compared to only 2.3% of those without arthritis/CJS.

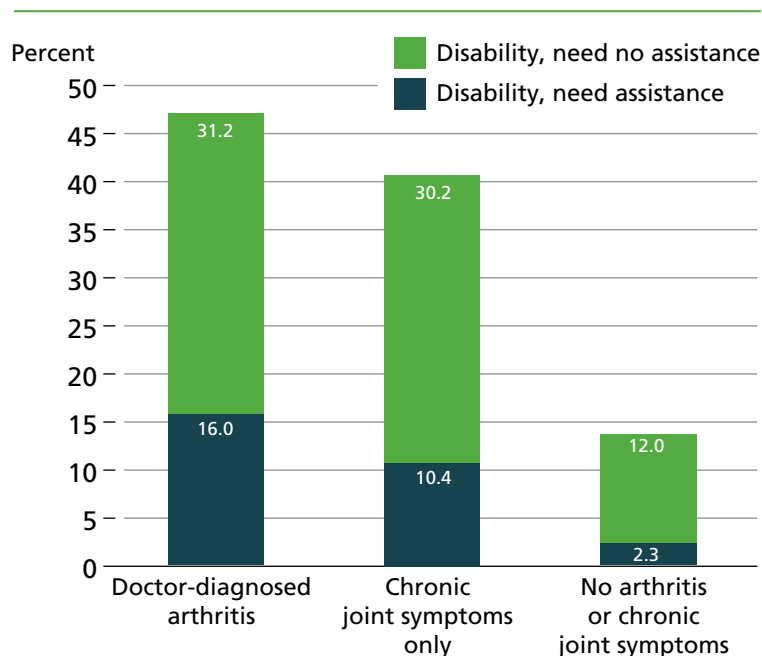


Figure 11

New York Adults Reporting Disability, by Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only Status and Degree of Disability (Need Assistance or No Assistance in Activities of Daily Living): 2000-2001 NYS BRFSS

Arthritis and Quality of Life

Quality of life (QoL) generally corresponds to total well-being, encompassing both physical and psychosocial determinants.²³ Components of QoL include performance of social roles, physical status, emotional status, social interactions, intellectual functioning, economic status, and self-perceived or subjective health status.²⁴ Health-related quality of life (HRQoL) refers to the “physical, psychological, and social domains of health, seen as distinct areas that are influenced by a person’s experiences, beliefs, expectations, and perceptions”.²⁵ HRQoL is multidimensional and is composed of, at a minimum, physical functioning, psychological well-being, social and role functioning, and health perceptions.²⁶

HRQoL information on the BRFSS has consisted of both subjective ratings of health and perceptions of recent health. The HRQoL questions on perceived physical and mental health and function have become an important component of health surveillance and are

generally considered valid indicators of service needs and intervention outcomes. Self-rated health, in particular, is considered to be a reliable indicator of a person’s perceived health and is a good global assessment of a person’s well-being. Moreover, it has proved a more powerful predictor of mortality and morbidity than many objectives measures of health.²⁷

The Arthritis Program at CDC is interested in assessing quality of life among persons with reported or diagnosed arthritis. As evidence of this interest, the *National Arthritis Action Plan* has identified HRQoL data as a key surveillance need. HRQoL measures will be useful for measuring progress toward the plan’s goal of increasing quality and years of healthy life. In addition, such measures will prove valuable for tracking arthritis-related *Healthy People 2010* objectives.



Satisfaction with Life

When asked “In general, how satisfied are you with your life?,” adults with arthritis were more likely than those with no arthritis/CJS to respond as being dissatisfied or very dissatisfied with their lives (8.5% versus 4.9%, respectively) [Figure 12]. The difference was even greater for those with CJS only compared to those without arthritis/CJS (11.2% versus 4.9%, respectively).

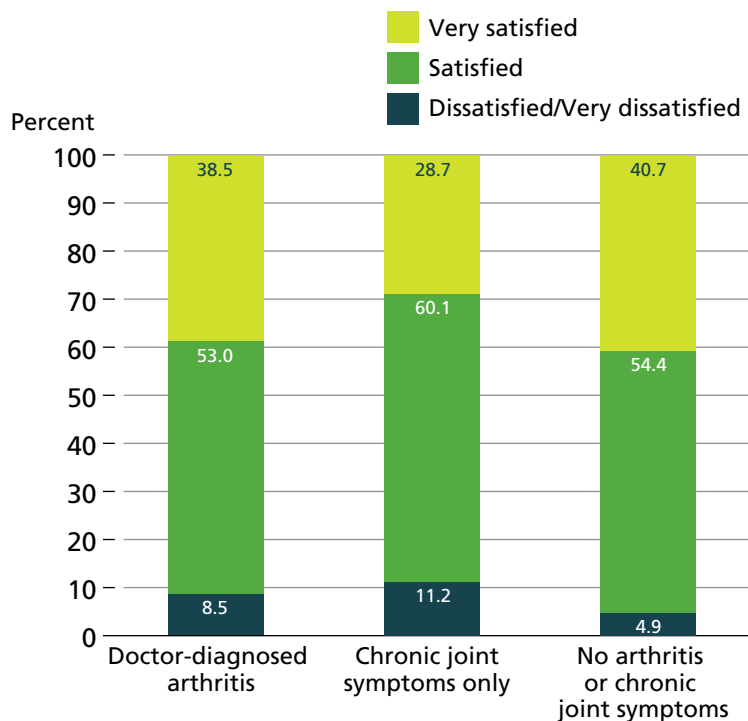


Figure 12

Reported Satisfaction with Life among New York Adults, by Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only Status: 2000-2001 NYS BRFS

Health Status

In response to the question “Would you say that in general your health is (excellent, very good, good, fair, or poor)?” adults with arthritis were far more likely to rate their perceived health status as “fair” or “poor” than were those without arthritis/CJS [Figure 13]. Over a quarter (29.4%) of those with doctor-diagnosed arthritis rated their general health status as either fair or poor, compared to 9.9% of those with no arthritis/CJS. Those with CJS only were also more likely than those with no arthritis/CJS to report fair or poor health (22.6% versus 9.9%, respectively).

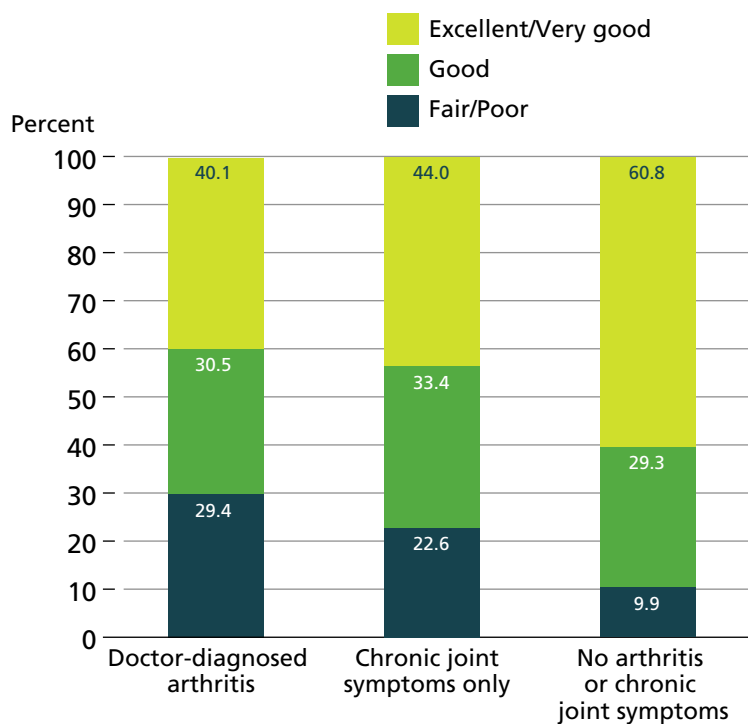


Figure 13

Self-Rated General Health Status of New York Adults, by Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only Status: 2000-2001 NYS BRFS

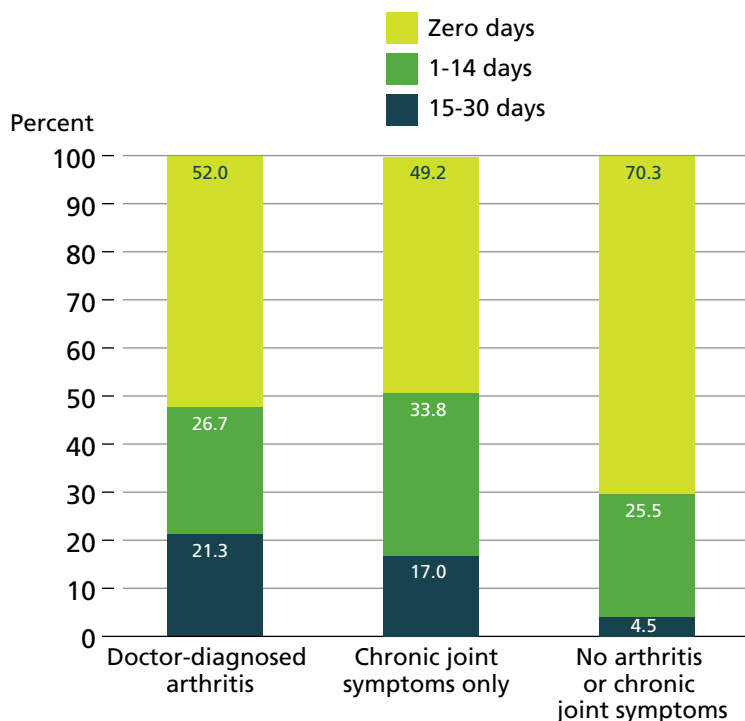
Symptom Days

A series of HRQoL questions on recent health elicited information on impaired health days during the prior month by asking respondents to estimate the number of days in the past 30 that they had experienced a number of adverse health events. These questions included measures for physical health, mental health, and activity limitation due to poor physical or mental health, pain, and depressed mood. Results for these five items are presented in Figures 15-19.

Physical health varied by arthritis status [Figure 14]. About one-fifth (21.3%) of adults with doctor-diagnosed arthritis reported having 15 or more days in the past 30 days in which their physical health was not good, compared to 4.5% of those with no arthritis/CJS.

Figure 14

Number of Days
in Past 30 Days
of Poor Physical Health
among New York Adults,
by Doctor-Diagnosed
Arthritis or Chronic Joint
Symptoms Only Status:
2000-2001 NYS BRFSS



Mental health differed by arthritis status [Figure 15]. A total of 13.1% of adults with doctor-diagnosed arthritis reported having at least 15 days in the past 30 days in which their mental health was not good, compared to 7.4% of those with no arthritis/CJS.

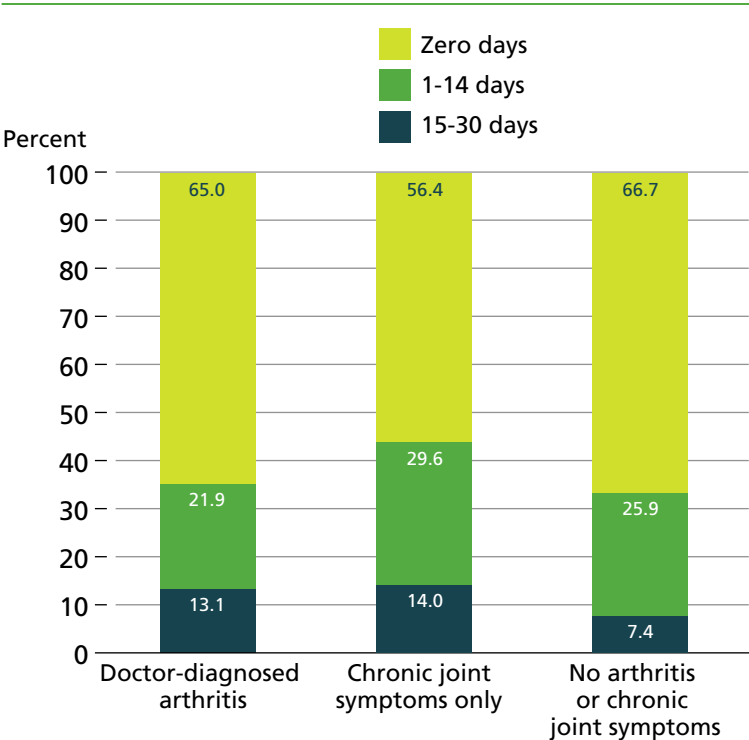


Figure 15
Number of Days
in Past 30 Days
of Poor Mental Health
among New York Adults, by
Doctor-Diagnosed Arthritis
or Chronic Joint Symptoms
Only Status:
2000-2001 NYS BRFSS

Activity limitation due to poor physical or mental health varied substantially by arthritis status [Figure 16]. Among adults with doctor-diagnosed arthritis/CJS, 19.8% responded as having 15 or more days during the past 30 days in which poor physical or mental health limited their usual activities. Only 4.9% of those with no arthritis/CJS gave this response.

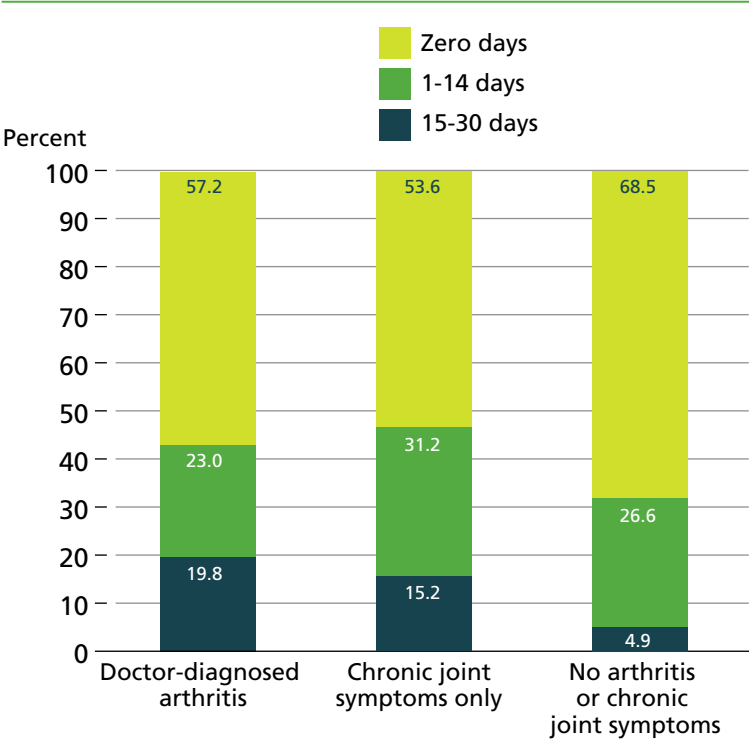
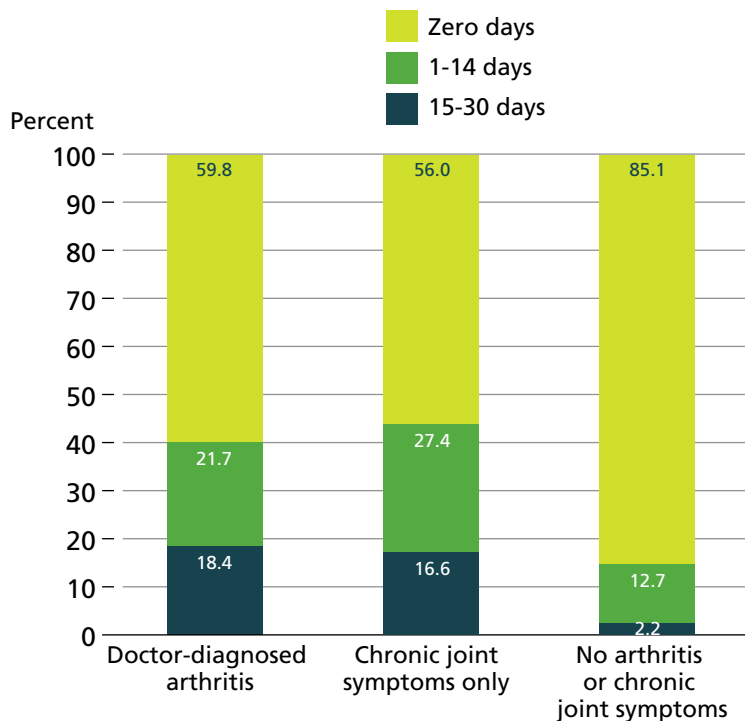


Figure 16
Number of Days
in Past 30 Days
That Poor Physical or
Mental Health Limited
Usual Activities among
New York Adults,
by Doctor-Diagnosed
Arthritis or Chronic Joint
Symptoms Only Status:
2000-2001 NYS BRFSS

Pain that interfered with usual activities was strongly associated with arthritis status [Figure 17]. Compared to those with no arthritis/CJS, about eight times as many of respondents with doctor-diagnosed arthritis reported 15 or more days in the past 30 days of activity-limiting pain (2.2% versus 18.4%, respectively).

Figure 17

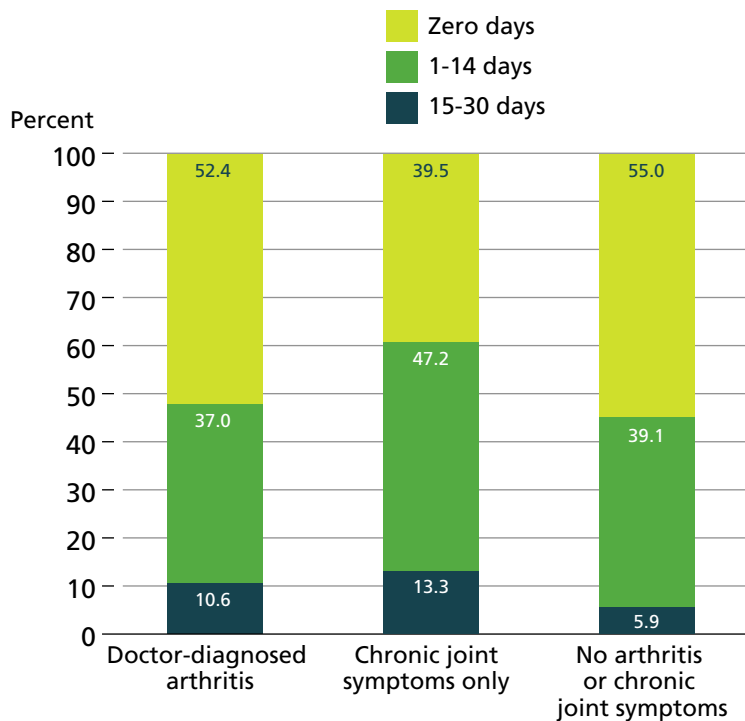
Number of Days
in Past 30 Days
That Pain Limited
Usual Activities among
New York Adults,
by Doctor-Diagnosed
Arthritis or Chronic Joint
Symptoms Only Status:
2000-2001 NYS BRFSS



Adults with arthritis were also more likely than those with no arthritis/CJS to report 15 or more days in the past 30 days of feeling sad, blue, or depressed (10.6% versus 5.9%, respectively) [Figure 18].

Figure 18

Number of Days
in Past 30 Days
of Feeling Sad, Blue,
or Depressed among
New York Adults, by
Doctor-Diagnosed Arthritis
or Chronic Joint Symptoms
Only Status:
2000-2001 NYS BRFSS



Hospitalizations with Arthritis Diagnosis

The surveillance of hospitalizations for arthritis in New York State is based on the NYSDOH database of hospital discharges, SPARCS (Statewide Planning and Research Cooperative System), a comprehensive patient data system established in 1979 as a result of cooperation between the health care industry and government. State regulations require that inpatient data be submitted by all authorized Article 28 medical care facilities certified for inpatient care. Table 1 presents a demographic breakdown of discharges for 2000-2002 that had musculoskeletal or connective tissue disease (MSCTD) given as the principal diagnosis. In general, results were consistent across the three-year period. Women were more likely than men to be hospitalized with a principal diagnosis of MSCTD. Moreover, non-Hispanic whites were far more likely than other racial/ethnic groups to be hospitalized for this condition, and the proportion of MSCTD hospitalizations varied directly with age. Patients with osteoarthritis comprised about 30% of the total MSCTD discharges. The number of joint replacements, in particular total knee replacements, for osteoarthritis increased over the three-year period.

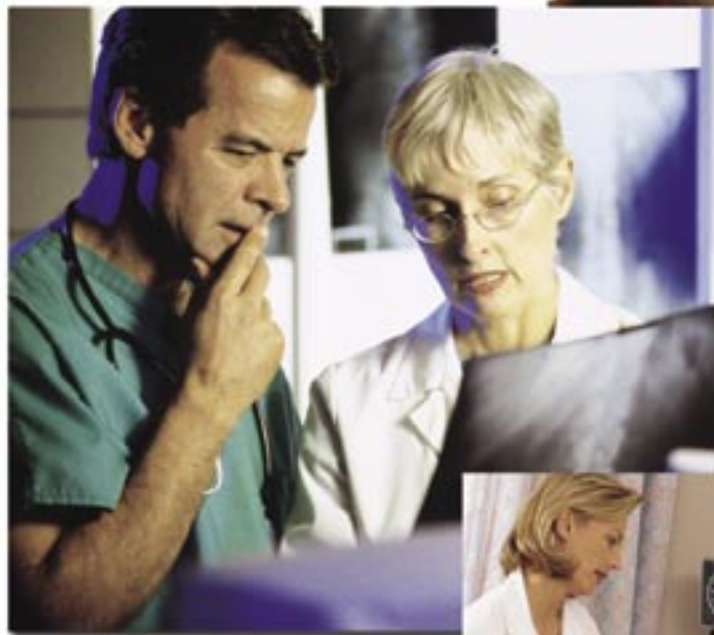


TABLE 1

**Surveillance of New York State Hospital Inpatient Discharges with Arthritic Conditions
(Principal Diagnosis), by Year of Discharge: SPARCS UDS***

	2000	2001	2002
Total hospital discharges	2,532,239	2,545,525	2,450,121
Total MSCTD[†] discharges	86,263	90,133	88,451
Female proportion	57.2%	57.9%	58.2%
Percent of MSCTD discharges by race/ethnicity			
Non-Hispanic white	65.1%	64.2%	64.0%
Non-Hispanic black	9.7%	9.9%	10.6%
Hispanic	5.3%	5.2%	5.8%
Other	2.6%	3.3%	3.4%
(Unknown)	17.2%	17.4%	16.2%
MSCTD discharges by age group (years)			
0-17	4.0%	3.8%	3.7%
18-44	22.2%	20.7%	19.9%
45-64	31.5%	31.9%	33.0%
≥ 65	42.2%	43.6%	43.4%
MSCTD attributable to disc, back, and other cervical disorders (ICD-9 722-724)	26,828 (31.1%)	27,483 (30.5%)	26,286 (29.7%)
MSCTD attributable to osteoarthritis (OA) (ICD-9 715)	24,154 (28.0%)	27,112 (30.1%)	27,548 (31.1%)
Number of primary total hip replacements (THR) for OA	10,496	11,119	11,370
Number of primary total knee replacements (TKR) for OA	13,007	14,822	15,316

* SPARCS UDS, Statewide Planning and Research Cooperative System, Universal Data Set

† MSCTD, musculoskeletal or connective tissue disease: Any principal diagnosis of ICD-9 CM codes 710-739

APPENDIX A

Technical Notes

Data Source

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone survey limited to the noninstitutionalized, civilian adult (aged 18 years and older) population. The system monitors modifiable risk behaviors and other factors contributing to the leading causes of morbidity and mortality in the population. BRFSS data are useful for planning, initiating, and supporting health promotion and disease prevention programs at state and federal levels, and for monitoring progress toward achieving health objectives for the state and nation. The New York State Department of Health has administered the BRFSS survey annually since 1985. In 2000 and 2001, the New York BRFSS included an Arthritis Module, which contained items to identify respondents with chronic joint symptoms and/or doctor-diagnosed arthritis.

Sample

Arthritis and other health-related questions were asked of 7,260 respondents in New York State over the period 2000-2001. Data were weighted to adjust for the selection probabilities and the estimates of age-sex-race distribution of adults in the state. The sample size resulted in estimates for a weighted population of 28,382,134 persons, a yearly average of 14,191,067 over the 2-year period.

Assessment of Doctor-Diagnosed Arthritis or Chronic Joint Symptoms Only

The Centers for Disease Control and Prevention has recommended (January 2004) that, for public health surveillance purposes, prevalence estimates derived from BRFSS data prior to 2002 be reframed by reporting separate estimates for “doctor-diagnosed arthritis” and “chronic joint symptoms (CJS) only.” Those with doctor-diagnosed arthritis should be the main focus of programmatic interventions and the statistical estimates of burden. Consistent with these guidelines, this report has distinguished between the two definitions in presenting results. This is a departure from the earlier document *Arthritis Action Plan for New York State*, in which the prevalence estimates of arthritis did not distinguish between the two concepts.

In this report, the definition of *doctor-diagnosed arthritis* was based on a response of “yes” to the following question:

- “Have you ever been told by a doctor that you have arthritis?”

The definition of *chronic joint symptoms only* was based on a response of “no” to the above question and “yes” responses to both of the following two questions:

- “During the past 12 months, have you had pain, aching, stiffness or swelling in or around a joint?”

- [If “yes”] “Were these symptoms present on most days for at least one month?”

[Note: For the purposes of this report, “arthritis” is considered to be synonymous with “doctor-diagnosed arthritis.” The two terms are used interchangeably.]

Data Analysis

Data from 2000 and 2001 were combined in order to increase the precision of prevalence estimates. Item responses of “don’t know/not sure” and “refused” to the question on doctor diagnosis were treated as missing values and excluded from the denominator. The distribution of arthritis and chronic joint symptoms across selected sociodemographic, health status, chronic condition, and risk factor subgroups was assessed by generating weighted point estimates of proportions and 95% confidence intervals, which indicate the precision of the estimates and permit assessment of subgroup differences. All estimates and associated standard errors were generated using SAS-callable SUDAAN software (PROC CROSSTAB procedure), which accounted for the multistage, stratified sampling of the survey.²⁸

Age Adjustment

The crude prevalence rates of arthritis by demographic subgroup [see Table B-1] were age adjusted to allow comparison among the subgroups. The rates were adjusted by the direct method to the 2000 US Census population, using age groups 18-24 years, 25-44 years, 45-64 years, and 65 years or older. The crude rates by body mass index status were also age adjusted [see Table B-2]. Adjusted rates were generated using SUDAAN PROC DESCRIPT.

Limitations

Findings based on the BRFSS survey are subject to several limitations. The BRFSS does not sample persons less than 18 years old, thus the findings might underestimate the true prevalence of arthritis and chronic joint symptoms in New York State. The BRFSS excludes persons without telephones. The survey represents undocumented self-reported data. Persons not included are those whose health condition would not permit a telephone interview, for example, those who are hearing; have cognitive, speech, and other communication impairment; have limited physical stamina; or could not get to the telephone.

APPENDIX B

Data Tables

TABLE B-1

Prevalence of Doctor-Diagnosed Arthritis and Chronic Joint Symptoms (CJS) Only, by Sociodemographic Characteristics of New York Adults: 2000-2001 BRFSS

Characteristic	No Arthritis/CJS				Arthritis/CJS Status							
					Doctor-Diagnosed Arthritis				CJS Only			
	No.	Wgt % [†]	CI (±) [‡]	Age-adj % [§]	No.	Wgt %	CI (±)	Age-adj %	No.	Wgt %	CI (±)	Age-adj %
Total New York State	4,856	67.9	1.3	68.5	1,683	22.9	1.2	22.4	667	9.2	0.8	9.2
Region												
New York City	1,788	71.5	2.2	70.7	474	19.3	1.9	20.2	210	9.2	1.5	9.1
Rest of New York State	3,068	65.9	1.5	67.2	1,209	24.9	1.4	23.5	457	9.2	1.0	9.3
Gender												
Male	2,128	73.5	1.8	72.9	541	17.6	1.6	18.2	264	8.9	1.2	8.9
Female	2,728	62.9	1.7	64.7	1,142	27.8	1.6	25.9	403	9.4	1.0	9.4
Age Group (years)												
18-24	545	89.7	2.7		22	2.9	1.3		46*	7.4	2.4	
25-34	1,243	85.1	2.1		104	6.0	1.2		131	8.9	1.8	
35-44	1,297	77.2	2.3		212	11.9	1.7		179	10.8	1.7	
45-54	819	63.0	3.2		346	24.6	2.8		160	12.4	2.2	
55-64	426	51.0	3.9		368	41.3	3.8		73	7.8	2.1	
≥ 65	445	41.4	3.3		604	52.2	3.3		68	6.4	1.7	
Race/Ethnicity												
White, non-Hispanic	3,315	65.0	1.5	67.2	1,343	26.2	1.4	23.8	469	8.8	0.9	9.0
Black, non-Hispanic	534	70.6	4.0	70.1	142	20.6	3.6	21.3	69	8.9	2.4	8.5
Hispanic	626	72.8	3.7	68.8	133	17.0	3.1	21.0	82	10.3	2.6	10.2
Other	288	79.3	5.2	77.4	35*	10.5	3.8	12.2	32*	10.2	4.0	10.4
Educational Attainment												
Less than High School	405	59.0	4.4	62.2	232	30.8	4.0	26.9	69	10.1	2.8	9.2
High School Grad/GED	1,237	64.7	2.5	66.2	528	25.8	2.2	24.0	192	9.5	1.5	10.9
Some College/Tech School	1,281	68.3	2.5	66.6	431	21.9	2.1	23.7	183	9.8	1.6	9.8
College Graduate	1,917	73.9	1.9	74.0	487	18.1	1.7	18.0	221	8.0	1.2	8.0
Annual Household Income												
<\$15,000	313	54.4	3.8	56.7	213	32.9	4.4	29.2	72	12.7	3.4	14.1
\$15,000 - \$24,999	630	61.4	3.6	63.4	298	29.2	3.3	26.7	97	9.3	2.2	9.9
\$25,000 - \$49,999	1,312	67.5	2.5	67.6	454	23.5	2.2	23.4	175	9.1	1.5	9.1
\$50,000 - \$74,999	763	71.7	3.0	70.9	192	17.8	2.6	19.0	118	10.5	2.1	10.0
≥\$75,000	1,099	76.9	2.4	75.1	236	15.5	2.1	17.7	109	7.6	1.6	7.2
Employment (18-64 years)												
Employed	3,359	76.7	1.4	76.7	657	13.6	1.2	13.5	436	9.7	1.0	9.7
Out of work	233	71.6	5.6	68.9	58	17.3	4.8	19.6	40*	11.1	3.9	11.5
Unable to work	95	34.6	7.2	49.4	136	48.5	7.5	35.4	44*	16.9	5.9	15.2
Other (homemaker, student, retired)	639	71.7	3.3	71.0	201	20.9	2.9	20.5	68	7.4	2.0	8.5

* Results should be interpreted with caution because of small cell size (<50)

† Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

‡ CI, 95% confidence interval.

§ Age-adj %, age-adjusted percent. Adjusted by the direct method to the 2000 US Census population, using age groups 18 through 24 years, 25 through 44 years, 45 through 64 years, and 65 years or older.

TABLE B-2

Prevalence of Doctor-Diagnosed Arthritis and Chronic Joint Symptoms (CJS) Only among New York Adults, by Body Mass Index (BMI) Status: 2000-2001 BRFSS

BMI Status (kg/m ²)	No Arthritis/CJS				Arthritis/CJS Status							
					Doctor-Diagnosed Arthritis				CJS Only			
	No.	Wgt % [*]	CI (±) [†]	Age-adj % [‡]	No.	Wgt %	CI (±)	Age-adj %	No.	Wgt %	CI (±)	Age-adj %
Neither overweight nor obese (<25.0)	2,294	74.3	1.8	72.3	574	17.6	1.5	19.4	259	8.1	1.1	8.2
Overweight (25.0-29.9)	1,631	68.0	2.2	70.5	570	23.5	1.9	20.9	213	8.5	1.2	8.6
Obese (≥30.0)	678	54.2	3.1	58.0	445	33.4	3.0	29.8	165	12.4	2.1	12.1

* Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

† CI, 95% confidence interval.

‡ Age-adj %, age-adjusted percent. Adjusted by the direct method to the 2000 US Census population, using age groups 18 through 24 years, 25 through 44 years, 45 through 64 years, and 65 years or older.

TABLE B-3

Leisure-Time Physical Activity Past Month among New York Adults, by Doctor-Diagnosed Arthritis/Chronic Joint Symptoms (CJS) Only Status: 2000-2001 BRFSS

Physical Activity	No Arthritis/CJS			Arthritis/CJS Status					
				Doctor-Diagnosed Arthritis			CJS Only		
	No.	Wgt % [*]	CI (±) [†]	No.	Wgt %	CI (±)	No.	Wgt %	CI (±)
Inactive (none reported)	1,185	26.2	1.5	571	35.7	2.7	204	32.2	4.3
Some activity	3,669	73.8	1.6	1,112	64.3	2.7	469	67.8	4.4
Total	4,854	100.0		1,683	100.0		667	100.0	

* Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

† CI, 95% confidence interval.

TABLE B-4

Prevalence of Disability among New York Adults, by Age and Doctor-Diagnosed Arthritis/Chronic Joint Symptoms (CJS) Only Status: 2000-2001 BRFSS

	No Arthritis/CJS			Arthritis/CJS Status					
				Doctor-Diagnosed Arthritis			CJS Only		
	No.	Wgt % [†]	CI (±) [‡]	No.	Wgt %	CI (±)	No.	Wgt %	CI (±)
Disability/Age (years)									
18-44									
Yes	336	11.8	1.5	142	41.7	6.0	134	37.2	6.0
Total	3,077			337			356		
45-64									
Yes	183	14.2	2.4	342	47.2	4.4	104	44.0	7.7
Total	1,241			713			233		
≥ 65									
Yes	126	29.4	5.1	316	49.8	4.5	28*	44.8	13.5
Total	440			603			68		
All ages									
Yes	653	14.2	1.2	811	47.2	2.7	269	40.6	4.5
Total	4,839			1,680			667		
Degree of Disability/Age (years)									
18-44									
Need assistance	50	1.6	0.5	52	14.2	4.0	40*	10.3	3.5
Need no assistance	286	10.2	1.5	90	27.5	5.5	94	26.9	5.6
Total	3,077			337			356		
45-64									
Need assistance	29*	2.3	1.2	114	17.0	3.4	29*	10.8	4.3
Need no assistance	154	11.9	2.1	228	30.2	4.0	75	33.2	7.4
Total	1,241			713			233		
≥ 65									
Need assistance	29*	6.1	2.4	102	15.9	3.2	7*	10.9	8.8
Need no assistance	97	23.2	4.8	214	33.9	4.2	21*	33.9	13.2
Total	440			603			68		
All ages									
Need assistance	110	2.3	0.5	271	16.0	2.1	76	10.4	2.6
Need no assistance	543	12.0	1.2	540	31.2	2.5	193	30.2	4.3
Total	4,839			1,680			667		

* Results should be interpreted with caution because of small cell size (<50)

† Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

‡ CI, 95% confidence interval.

TABLE B-5

Satisfaction with Life and Self-rated Health among New York Adults, by Doctor-Diagnosed Arthritis/Chronic Joint Symptoms (CJS) Only Status: 2000-2001 BRFSS

	Arthritis/CJS Status								
	No Arthritis/CJS			Doctor-Diagnosed Arthritis			CJS Only		
	No.	Wgt %*	CI (±)†	No.	Wgt %	CI (±)	No.	Wgt %	CI (±)
Satisfaction with Life									
Very satisfied	1,915	40.7	1.7	605	38.5	2.7	181	28.7	4.2
Satisfied	2,558	54.4	1.7	872	53.0	2.8	389	60.1	4.5
Dissatisfied / Very dissatisfied	252	4.9	0.7	157	8.5	1.5	80	11.2	2.8
Total	4,725	100.0		1,634	100.0		650	100.0	
Self-Rated Health									
Excellent / Very good	3,110	60.8	1.7	679	40.1	2.7	310	44.0	4.5
Good	1,323	29.3	1.6	525	30.5	2.5	214	33.4	4.3
Fair / Poor	415	9.9	1.1	467	29.4	2.6	139	22.6	4.0
Total	4,848	100.0		1,671	100.0		663	100.0	

* Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

† CI, 95% confidence interval.

TABLE B-6

**Recent (Number of Days within Past 30 Days) Symptom Days among New York Adults,
by Doctor-Diagnosed Arthritis/Chronic Joint Symptoms (CJS) Only Status: 2000-2001 BRFSS**

Symptoms/Number of Days	Arthritis/CJS Status								
	No Arthritis/CJS			Doctor-Diagnosed Arthritis			CJS Only		
	No.	Wgt % [*]	CI (±) [†]	No.	Wgt %	CI (±)	No.	Wgt %	CI (±)
Poor Physical Health									
None	3,407	70.3	1.6	845	52.0	2.8	328	49.2	4.6
1-14	1,202	25.2	1.4	444	26.7	2.5	211	33.8	4.4
15-30	198	4.5	0.7	340	21.3	2.4	110	17.0	3.5
Total	4,807	100.0		1,629	100.0		649	100.0	
Poor Mental Health									
None	3,124	66.7	1.6	1,028	65.0	2.6	343	56.4	4.5
1-14	1,300	25.9	1.4	391	21.9	2.3	207	29.6	4.2
15-30	362	7.4	0.9	223	13.1	1.9	101	14.0	3.1
Total	4,786	100.0		1,642	100.0		651	100.0	
Activity Limitation									
None	1,649	68.5	2.2	589	57.2	3.4	239	53.6	5.6
1-14	641	26.6	2.2	254	23.0	2.9	141	31.2	5.2
15-30	109	4.9	1.1	205	19.8	3.0	69	15.2	4.0
Total	2,399	100.0		1,048	100.0		449	100.0	
Pain									
None	4,022	85.1	1.2	946	59.8	2.7	360	56.0	4.6
1-14	612	12.7	1.2	374	21.7	2.2	174	27.4	4.2
15-30	99	2.2	0.5	293	18.4	2.2	113	16.6	3.3
Total	4,733	100.0		1,613	99.9		647	100.0	
Depressed Mood									
None	2,453	55.0	1.7	786	52.4	2.9	236	39.5	4.5
1-14	1,921	39.1	1.7	630	37.0	2.7	311	47.2	4.7
15-30	298	5.9	0.8	184	10.6	1.7	95	13.3	3.0
Total	4,672	100.0		1,600	100.0		642	100.0	

* Wgt %, weighted percent. Percentages are weighted for selection probabilities and adjusted for age-sex-race distribution of New York adults.

† CI, 95% confidence interval.

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